

I. Claims on Which Agreement Was Tentatively Reached

A. Claims 1-10

Claim 1 is directed to a computer system comprising a host domain and a storage domain coupled to the host domain through one or more communication links. The storage domain comprises a plurality of primary storage devices, a secondary storage device and a network. The network is separate from each of the one or more communication links that couple the storage domain to the host domain, and couples the plurality of primary storage devices to the secondary storage device to permit one of the primary storage devices to access the secondary storage device through the network without using any of the one or more communication links that couple the storage domain to the host domain.

The final Office Action and the Advisory Action indicated that the high speed link 6 that connects the master storage system 2 to the slave storage system 4 in Tamer also provides a connection between the server 10 and the master storage system 2, as well as between the server 8 and the slave storage system 4, so that it can correspond to a link between the host and storage domains, and that the network 14 is separate from the link 6 and couples the master storage system 2 to the slave storage system 4 and the tape silo 12.

As discussed during the telephone interview, claim 1 recites that the network that couples the primary storage devices to the secondary storage device be separate from each of the one or more communication links that couple the storage domain to the host domain, and that the network permit one of the primary storage devices to access the secondary storage device through the network without using any of the one or more communication links that couple the storage domain to the host domain. As discussed during the interview, to the extent that any communication occurs between the storage systems 2, 4 and/or the tape silo other than through the high speed communication link 6, such communication can occur only through at least one of the links (not numbered) that connect the server 10 to the slave storage system 4, or the server 8 to the storage system 2. To the extent that Tamer can be considered to teach a host domain and a storage domain, these unnumbered links clearly couple the host domain (including the servers 8 and 10) to the storage domain (including the storage systems 2 and 4). Thus, there is no network in Tamer that couples a primary storage system to a secondary storage system to permit access without using any of one or more communication links that couple the storage domain to the host domain.

During the telephone interview, the Examiner was persuaded by this argument, and indicated that it appeared that claim 1 patentably distinguished over Tamer. (See the interview summary dated January 29, 2004). Although the Examiner understandably reserved final judgment, he indicated that the rejection of claim 1 (as well as claims 2-10 and 26 that depend therefrom) over Tamer would likely be withdrawn.

B. Claims 19-28

Claim 19 is directed to a method of transferring data from at least one of a plurality of primary storage elements to a secondary storage element, the method comprising steps of automatically establishing a first connection through a network between a first primary storage element and the secondary storage element through which a first logical object can be transferred, the first connection being determined by at least one of the primary storage element and the secondary storage element; and transferring the first logical object from the first primary storage element directly to the secondary storage element over the first connection.

The Final Action indicated that Tamer teaches a step of automatically establishing a connection at col. 5, lines 20-28 and 39-40, with the Advisory Action indicating that when the communication link 6 in Tamer "is terminated", Tamer discloses writing of mirrored volumes from one of the storage systems 2, 4 to the other through a path that includes the servers 8, 10. As discussed during the interview, Tamer does not teach that any communication takes place between the storage systems when the link 6 is terminated.

In this respect, Tamer teaches that when the link between the master and slave storage units is terminated, writes to the master unit "will, of course, no longer be sent automatically to the slave unit." (Col. 5, lines 24-25).

Tamer refers to an MMF feature. During the telephone interview, the Examiner questioned whether this feature could be considered to result in another connection being formed between the storage systems 2 and 4 when the link 6 is terminated. As discussed during the interview, that is not the case, as the MMF feature is similar to the RDF feature in some respects, "except that the mirror copy is generated within the same box as the primary database." (Col. 5, lines 29-30). Thus, as discussed during the telephone interview, when the link 6 is terminated, Tamer does not teach or suggest that any communication whatsoever occurs between the storage systems 2 and 4.

In view of the foregoing explanation, the Examiner agreed that claim 19 appeared to patentably distinguish over Tamer. Although understandably reserving final judgment, the Examiner indicated that the rejection over Tamer appeared to be overcome (See the interview summary dated January 29, 2004).

C. Conclusion Regarding Claims 1-10, 19-26 and 28

In view of the foregoing, Applicants respectfully assert that the rejections of claims 1-10 and 19-28 should be withdrawn.

II. Claims On Which No Agreement Was Reached

A. Claims 11-18 and 27

In ¶ 6 of the final Office Action, claims 11-18 and 27 are rejected under 35 U.S.C. §103 as being obvious over Tamer. This rejection is respectfully traversed.

Claim 11 is directed to a computer system comprising a heterogeneous plurality of host computers including at least a first host computer comprising a first platform and a second host computer comprising a second platform different from the first, and a single back up controller capable of backing up data stored from both the first and second host computers on a plurality of primary storage devices to a secondary storage device.

In the Advisory Action, the Examiner traversed Applicants' arguments that the prior art of record fails to teach or suggest a single back up controller capable of backing up data stored from heterogeneous host computers. The Advisory Action indicates that Tamer discloses a back up data console 16 which is capable of backing up data stored from heterogeneous host computers (i.e., servers 8 and 10) to back up data device 12 as shown in Fig. 1B.

As discussed during the telephone interview, Tamer does not teach or suggest that the servers 8 and 10 are heterogeneous. Thus, Tamer clearly does not teach or suggest a single back up controller capable of backing up data stored from heterogeneous host computers.

In addition, even if the Examiner were correct that it would have been obvious to one of ordinary skill in the art to employ heterogeneous host computers in the Tamer system, the prior art of record still would fail to teach employing a *single* back up controller capable of backing up data stored from the heterogeneous host computers. Rather, following the conventional

1 teachings of the prior art, a computer system with two or more heterogeneous host computers would employ two or more backup controllers, one dedicated to each type of host computer. There is simply nothing in the prior art of record to teach or suggest a single backup controller capable of backing up data from heterogeneous host computers.

During the telephone interview, the Examiner questioned whether support for the use of a single back up controller capable of backing up data from heterogeneous host computers could be found in Bergsten at col. 4, lines 51-56. As discussed during the telephone interview, the cited section of Bergsten merely indicates that a computer system can be employed with different types of host computers and different types of mass storage devices (MSDs). However, in the architecture of Bergsten, there is a particular storage controller (3-1 through 3-M) dedicated to each host computer and each storage array (4-1 through 4-M). Although each of the storage controllers can communicate in a peer-to-peer relationship (see e.g., col. 5, lines 5-15), there is a particular storage controller dedicated to each storage array and host computer pair. Therefore, Bergsten simply does not teach or suggest a single back up controller capable of backing up data from heterogeneous host computers, as each host has a separate backup controller (storage controller 3-1 through 3-M) dedicated to it.

During the telephone interview, although no agreement was reached, the Examiner indicated that he would reconsider whether the disclosure of Bergsten supported the rejection.

CONCLUSION

In view of the foregoing remarks, it is believed that the application is in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes that the application is not in condition for allowance, he is respectfully requested to contact the undersigned at the number listed below to discuss any outstanding issues relating to the allowability of the application, and to determine whether a subset of the claims is in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.